

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application No. : 10/507,007  
Confirmation No. : 8778  
Applicants : Katsuki Ogawa, et al.  
Filed : 7 September 2004  
Title : COMPOSITE POWDER, COSMETICS  
CONTAINING THE SAME AND  
PROCESS FOR PRODUCING  
COMPOSITE POWDER

TC/A.U. : 1615  
Examiner : Aradhana Sasan

Docket No. : IWI-15684

Mail Stop Appeal Brief-Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**APPEAL BRIEF**

Sir:

This Appeal Brief is being filed pursuant to the Notice of Appeal, filed 1 June 2009.

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# **I. REAL PARTY IN INTEREST**

The real party in interest or owner of the present application and the technology and inventions embodied therein is Shiseido Company, Limited, whose principal mailing address is 5-5 Ginza 7-chome, Chuo-ko, Tokyo 104-8010 Japan. An assignment transferring rights from the inventors to Shiseido Company was recorded 27 September 2004 at Reel 015825, Frame 0497.

## **II. RELATED APPEALS AND INTERFERENCES**

None.

### **III. STATUS OF CLAIMS**

The application included 21 claims as originally filed on 7 September 2004.

In a Preliminary Amendment filed together with the application, claims 15, 18, and 19 were amended, leaving 21 claims pending.

In a first Office Action mailed on 18 June 2008, the Examiner rejected claims 1-21 as anticipated and obvious. Claims 1, 15, and 16 were provisionally rejected for double patenting over copending App. Ser. No. 10/471,087, while claims 1-3, 7, 12, and 15 were similarly provisionally rejected over copending App. Ser. No. 11/721,472.

In an Amendment filed 9 October 2008, Applicants amended claims 1, 20, and 21, cancelled claims 8 and 13, and added claim 22.

In a second Office Action mailed on 30 January 2009, the Examiner finally rejected claims 1- 7, 9-12, and 14-22 on the same grounds as in the first Office Action.

On 21 April 2009, Applicants filed an Amendment after Final together with terminal disclaimers relevant to the double patenting rejections.

In an Advisory Action mailed 8 May 2009, the Examiner refused to enter the Amendment after Final, maintaining the finality of the rejection of claims 1-7, 9-12 and 14-22.

On 1 June 2009, Applicants filed a Notice of Appeal.

Claims 1-7, 9-12 and 14-22 stand finally rejected, and all such claims are pending on appeal. The pending claims are set forth in the Claims Appendix, which is attached hereto for the convenience of the Board.

#### **IV. STATUS OF AMENDMENTS**

No amendments were filed in the application subsequent to the Advisory Action mailed 8 May 2009.

## **V. SUMMARY OF CLAIMED SUBJECT MATTER**

The present application is directed to a composite powder comprising a substrate powder that is partially covered in barium sulfate particles or zinc oxide particles. In particular, independent claim 1 claims

a composite powder comprising a flaky substrate powder and barium sulfate particles or zinc oxide particles that adhere, in protrusions, to the surface of said substrate powder, (spec. p. 4, lines 3-5, paragraph [0016]) wherein the coverage with barium sulfate particles is 10-70% with respect to the surface area of said substrate powder (spec. p. 4, lines 18-19, paragraph [0017]), or the coverage with zinc oxide particles is 40-90 % with respect to the surface area of said substrate powder, (spec p. 10, lines 11-13, paragraph [0072]).

Separately argued independent claim 16 claims a method of producing a composite powder having barium sulfate particles adhered to a substrate powder, wherein seed particles are allowed to coexist in a slurry solution of flaky substrate powder, (p. 11, lines 1-5, paragraph [0074]), where barium sulfate crystals are grown from the seed particles, (p. 11, lines 2-4, paragraph [0074]). Solutions of barium ions and sulfate ions are added to the slurry to form barium sulfate crystals (seed particles acting as nuclei) which barium sulfate particles adhere to the surface of the substrate powder, (p. 11, lines 4-8, paragraph [0074]).

Separately argued independent claim 17 relates to a method of producing composite powder according to present invention contains adhering zinc oxide particles, wherein seed particles are allowed to coexist in a slurry solution of the flaky substrate powder, zinc oxide crystals are grown from said seed particles, which act as nuclei, by adding a zinc ion solution and an alkali aqueous solution to said solution and reacting them, and the formed zinc oxide particles are allowed to adhere to the surface of said substrate powder (p.5, lines 14-19, paragraph [0021]).

## **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

Whether claims 1, 6, 7, and 15 were properly rejected under 35 U.S.C. § 102(b) as being unpatentable over Watanabe, et al., U.S. 4,603,047, (“Watanabe”).

Whether claims 1, 6, 7, and 15 were properly rejected under 35 U.S.C. § 102(b) as being unpatentable as being unpatentable over Noguchi et al., U.S. 5,380,360, (“Noguchi ‘360’”)

Whether claims 1-7, 9-12, 14 and 15 were properly rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi et al., U.S. 4,956,019, (“Noguchi ‘019’”) in view of Noguchi et al., U.S. 6,086,666, (“Noguchi ‘666’”).

Whether claims 1-7, 9-12, 14 and 15 were properly rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi et al., U.S. 4,956,019, (“Noguchi ‘019’”) in view of Noguchi et al., U.S. 6,086,666, (“Noguchi ‘666’”).

Whether claims 16, 18, and 19 were properly rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe.

Whether claims 20 and 21 were properly rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe in view of Noguchi ‘360.

Whether claim 17 was properly rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi ‘019 in view of Watanabe.



## **VII. ARGUMENT**

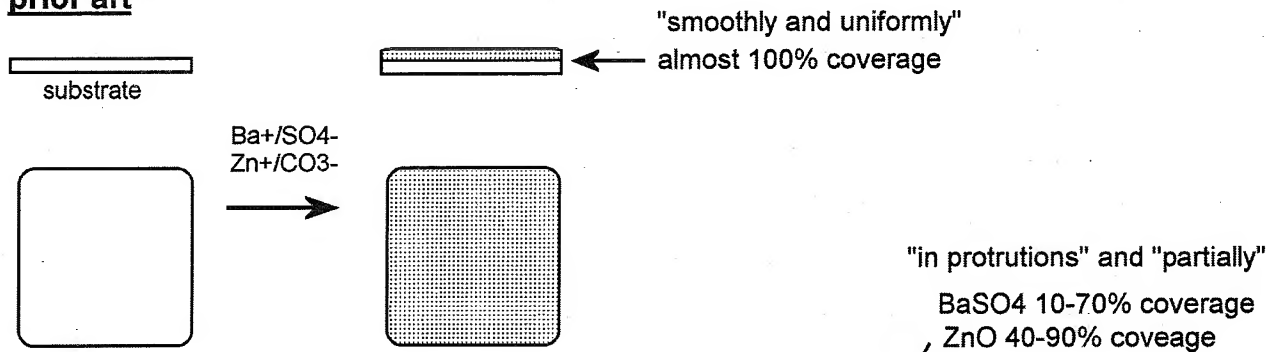
### **A. Claims 1, 6, 7, and 15 (Grouped) Were Improperly Rejected Under 35 U.S.C. § 102(b) over Watanabe**

Claims 1, 6, 7 and 15 were rejected under 35 U.S.C. 102(b) as being anticipated by Watanabe, et al., U.S. 4,603,047, ("Watanabe"). The Examiner asserts that the claimed invention is a composite powder comprising a flaky substrate powder and barium sulfate particles or zinc oxide particles that adhere, in protrusions, to the surface of the substrate powder. The Examiner contends that Watanabe teaches flaky substrates, such as mica, with a firmly adhering coating of barium sulfate that is used in cosmetics. The Examiner quotes col. 1, lines 49-60; col. 2, lines 3-8; col. 3, lines 46-49; and examples 7 and 12-14, and concludes that the indicated claims are anticipated by Watanabe.

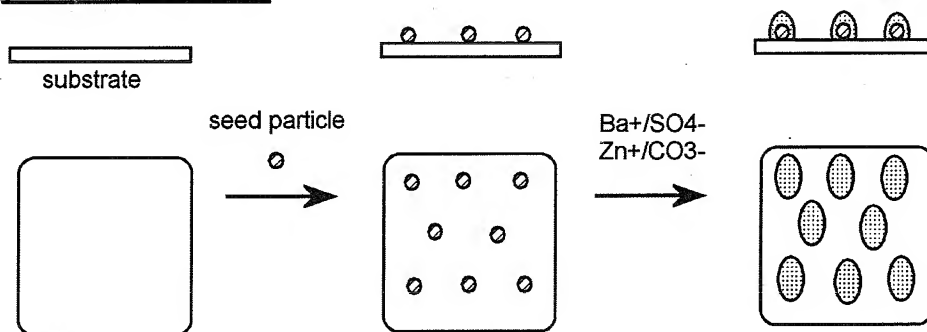
Watanabe fails to disclose the composite powder of the present invention. In the composite powder of the present invention, barium sulfate particles and zinc oxide particles adhere to a flaky substrate powder in protrusions and only partially cover the surface of the substrate powder. The claimed barium sulfate coverage is 10–70%, and the claimed zinc oxide coverage is 40–90%. In contrast, the composite powders of Watanabe include BaSO<sub>4</sub> or ZnO that adheres to the substrate powder smoothly and uniformly, i.e., essentially 100% coverage. The inventive composite powder is produced in the presence of seed particles. The use of seed particles ensure that the BaSO<sub>4</sub> or ZnO particles adhere to the substrate both in protrusions and only partially cover the substrate. The seed particles act as the nuclei for the crystal growth of BaSO<sub>4</sub> or ZnO, and the crystals of BaSO<sub>4</sub> or ZnO begin to grow around the seed particle as instantly taught in paragraph [0074]. This is the commonly used meaning of the term "seed particles" in this context.

To the contrary, Watanabe discloses a scenario where BaSO<sub>4</sub> or ZnO adhere smoothly and uniformly (essentially 100% coverage) without the use of seed particles, because there are not any nuclei for the crystal growth on the surface of substrate powder as schematically depicted below:

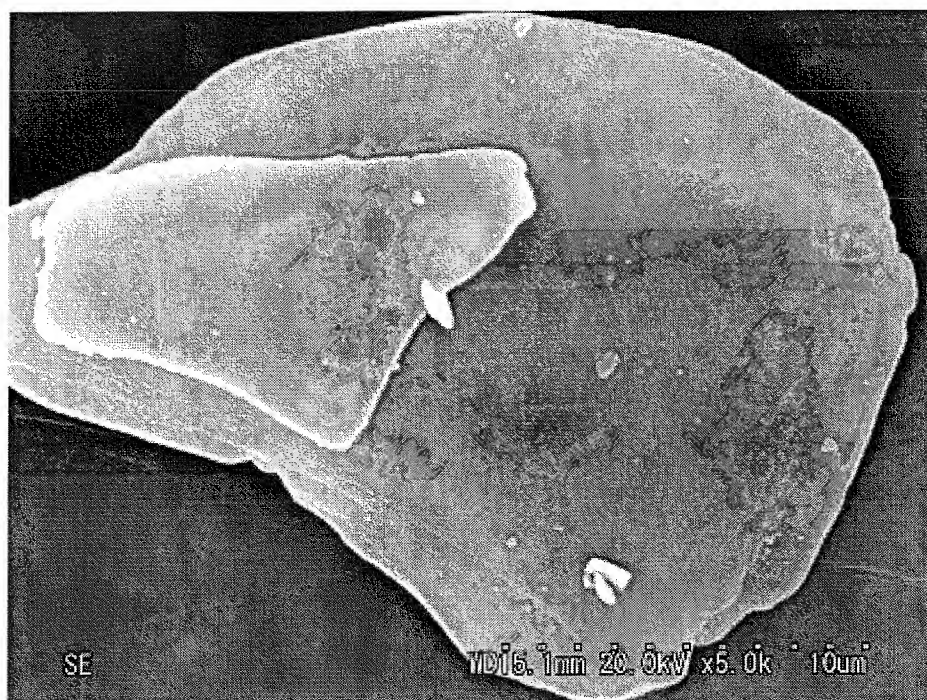
**prior art**



**present invention**



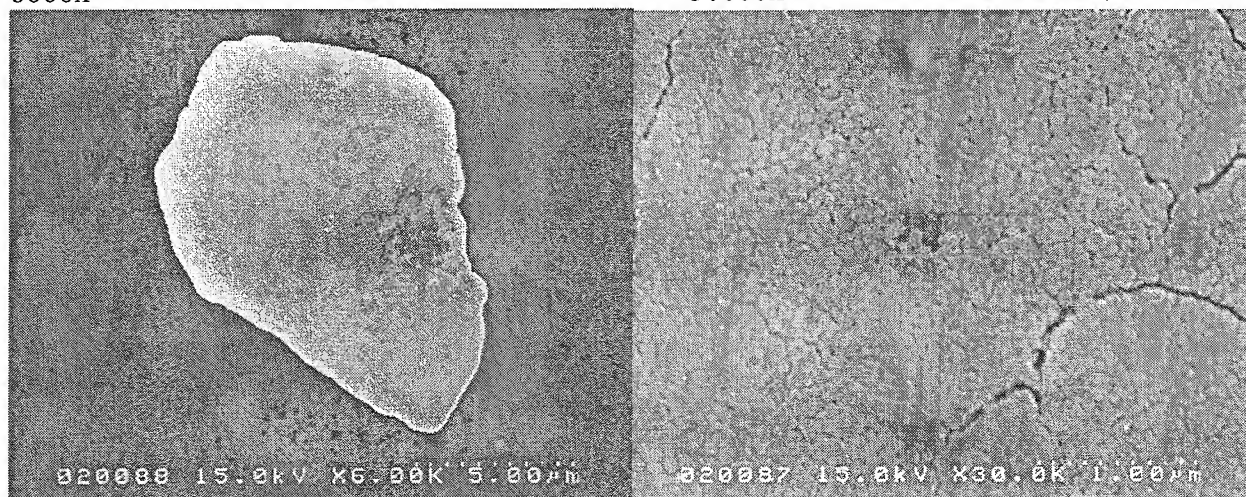
The Inventors herein previously attempted to produce BaSO<sub>4</sub>-coated titanated mica composite powder without seed particles. A SEM picture of the BaSO<sub>4</sub> coating titanated mica composite powder without seed particles is shown below. It is evident that BaSO<sub>4</sub> adhered smoothly and uniformly, giving almost 100% coverage and similarly evident that a composite powder having only partial coverage of BaSO<sub>4</sub> or ZnO in protrusions cannot be obtained without seed particles.



In addition, Applicants previously obtained composite powder of titanated mica coated with  $\text{BaSO}_4$  provided by Merck (assignee of all cited references); SEM photomicrographs of which are presented below. It is evident that the Merck composite powder features  $\text{BaSO}_4$  or  $\text{ZnO}$  giving smooth, uniform and nearly complete coverage.

6000x

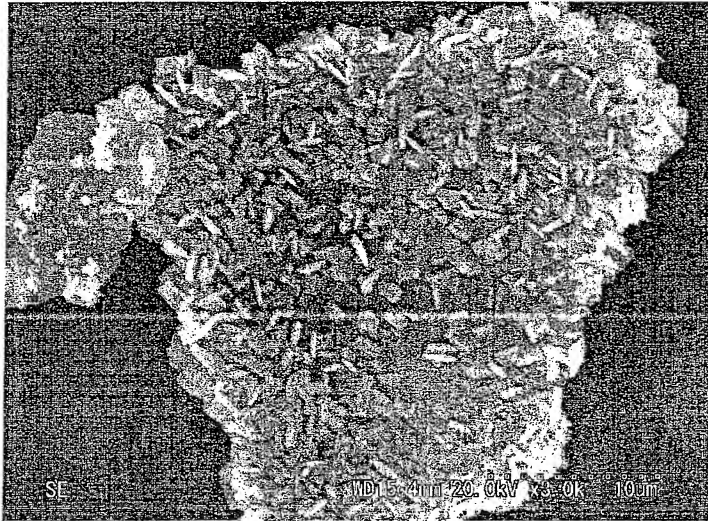
30000x



SEM photomicrographs of the  $\text{BaSO}_4$ -coated titanated mica composite powder of the present invention are shown below, labeled Example 1(A) and Example 1(B).

## Example 1

(A)



(B)



“The metal oxides disclosed by Watanabe that are precipitated on [sic] are interpreted [by the Examiner] as seed particles which can be used to coat a substrate and will inherently act as crystallization nuclei,” Office Action, 1/30/09, p. 4, lines 1-4. However, Watanabe teaches that the metal oxide cannot be added before  $\text{BaSO}_4$  is precipitated. Thus, the metal oxide cannot act as a nucleation agent, i.e., “seed particle,” because it is not present before the precipitation of

BaSO<sub>4</sub> is complete. In addition, metal oxide is precipitated on the composite powder by reaction of metal sulfate (metal ion remainder of formation of BaSO<sub>4</sub>) and alkali hydroxide. Because the metal oxide precipitates only after BaSO<sub>4</sub> is added to the substrate powder, the composite powder of Watanabe features a coating of metal oxide on its outermost surface.

In the Advisory Action of 8 May 2009, the Examiner found the foregoing argumentation to be unpersuasive. The Examiner cited Watanabe to support the allegation that “a metal oxide ... is also precipitated on, in addition to the barium sulphate layer, and this additional precipitation can be either colorless or colored,” (col. 2, lines 17-21). The Examiner concludes, “[t]herefore, the metal oxide is ‘also precipitated on’ the substrate, and does not imply that the metal oxide is precipitated on after the barium sulphate layer. Watanabe also teaches that ‘it is also possible, however, not to add the metal selected for additional precipitation before the precipitation of barium sulphate, but only after the precipitation of barium sulphate’,” (col. 2, lines 61-64).

The full passage of Watanabe quoted in the Advisory Action and the Office Action of 30 January 2009 does not support this contention. The passage in full begins with “if:”

If the additional precipitation is carried out in the manner described, the quantity of the additional precipitation is fixed by the quantity of the metal sulphate used. It is also possible, however, not to add the metal selected for the additional precipitation before the precipitation of barium sulphate, but only after the precipitation of barium sulphate. Metal salts, such as, for example, titanium tetrachloride, titanium trichloride, aluminum chloride, aluminum nitrate, zinc chloride, zinc nitrate, bismuth oxychloride, magnesium chloride, magnesium nitrate, calcium chloride, iron (II) chloride, iron (III) chloride, iron nitrate, chromium chloride, chromium nitrate, manganese nitrate, cobalt chloride and cobalt nitrate are suitable for this purpose.”

The Examiner’s interpretation of the foregoing passage (column 2, lines 17-24 of Watanabe) is questionable. Watanabe teaches away from adding a metal oxide before precipitation inasmuch as the reference required that metal be added after precipitation. The only way the metal oxide could act as a seed or nucleating agent is if, and only if, the metal oxide is present before the precipitation of barium sulfate, which does not happen in Watanabe. Watanabe teaches away from the instantly claimed particles because the instantly claimed particles (having a coating of ZnO or BaSO<sub>4</sub> in protrusions) can only be obtained by use of a





claimed substrate particles come as irregularly shaped islands, and not a continuous covering. The Examiner confuses this point on page 3, lines 9-12 of the Office Action of 30 January 2009. The Examiner appears to require proof of the absence of protrusions on the mica of Watanabe. This is irrelevant. The claimed invention requires that the coating of BaSO<sub>4</sub> or ZnO particles adheres in protrusions. There is no limitation requiring that BaSO<sub>4</sub> or ZnO particles adhere "to" protrusions "on" the substrate particles. The phrase "in protrusions" means that the BaSO<sub>4</sub> or ZnO adheres to the substrate particles in irregularly shaped precipitations.

Such protrusions are a result of the use of seed particles which act as nuclei for crystallization of BaSO<sub>4</sub> or ZnO. Again, Applicants note that Watanabe discloses that metal oxides can also be precipitated on the pigment, col. 2, lines 17-21. Such metal oxides cannot be considered seed particles because they do not act as crystallization nuclei. Indeed, the oxide particles of Watanabe are precipitated, that is, applied onto the pigment, after the pigment is coated onto the substrate particle.

The Examiner glosses over this great distinction as evidenced in the Response to Arguments, at the top of page 4 of the Office Action of 30 January 2009, in particular the Examiner's "interpretation," as discussed above. Applicants respectfully submit that the Examiner's "interpretation" is incorrect.

Whether an oxide powder functions as a seed particle, i.e., a crystallization nucleus, indeed depends on whether it is present at a time when a crystallizable composition is added to a substrate. If the crystallizable composition (i.e., BaSO<sub>4</sub>) has already been crystallized before the crystallization nucleus has been added, the prospective seed particle cannot then be a nucleus for crystallization, as there is nothing further to crystallize. This is not a matter of interpretation. The metal oxides of Watanabe do not coat the substrate directly, but are added to a coating previously applied, a coating of BaSO<sub>4</sub> or ZnO.

Any crystallization of BaSO<sub>4</sub> (pigment) that may occur in the synthesis of Watanabe's particles necessarily occurs before the oxide particles are added. Such oxide particles cannot then act as seed particles. The lack of seed particles means that precipitation of BaSO<sub>4</sub> results in an essentially continuous and full (~100%) coverage of the substrate powder. Hence, Watanabe fails to disclose all limitations of the rejected claims. Based on the foregoing, Appellants

respectfully that the board overturn the rejection of claims 1, 6, 7, and 15 as anticipated by Watanabe.

**B. Claims 1, 6, 7, and 15 (Grouped) Were Improperly Rejected Under 35 U.S.C. § 102(b) over Noguchi '360**

Claims 1, 6, 7 and 15 were rejected under 35 U.S.C. 102(b) as being anticipated by Noguchi et al., U.S. 5,380,360, ("Noguchi '360"). The Examiner contends that Noguchi '360 teaches flaky pigments with a barium sulfate coating where the barium sulfate grain size is from 0.5 to 2.0 microns and their use in cosmetics as extender pigments for face powder with excellent skin adhesiveness are known in the art, col. 1, lines 8-20. The Examiner further cites col. 2, lines 24-36 and 67-68; col. 3, lines 3-7 and 28-30; col. 11, lines 13-27 of Noguchi and concludes that the limitations of claims 1, 6, 7, and 15 are anticipated by the disclosures thereof.

The Examiner's reasoning for this rejection is that claim 1 currently recites that a substrate powder is coated with "barium sulfate particles or zinc oxide particles" and that the alternate coatings have covering rates of 10-70% or 40-90%. The Examiner believes that because claim 1 allows a choice between barium sulfate particles and zinc oxide particles, the disclosure of barium sulfate particles coating a flaky pigment of Noguchi '360 still anticipates the claim. Otherwise, the Examiner's reasoning for this rejection is the same as for the Watanabe rejection, above.

Appellants further distinguish the invention over Noguchi '360 by incorporating by reference as if fully stated herein, the discussion of the instantly claimed complex powder as well as the prior art, including photomicrographs, from the discussion of the Watanabe 102(b) rejection, above.

Noguchi '360 discloses, in pertinent part, at column 2, lines 6-24, that

the ultra fine granular barium sulfate-coated flaky pigment is prepared by applying the following aqueous solutions (a), (b) and (c) to a suspension of a substrate which is fine flaky grains, as a pigment base, suspended in water; the method being characterized in that (a) is added to the suspension with stirring and then (b) and (c) are simultaneously added thereto, or an aqueous solution of (a) and (b) (prepared by adding (a) to (b)) and (c) are simultaneously added to the suspension with stirring, whereby the surfaces of the fine flaky pigment base grains are coated with ultra-fine barium sulfate grains having a mean grain size of 0.1  $\mu$ m or less:



- (a) an aqueous solution containing a complexing agent capable of forming a complex compound with barium ion, as dissolved therein;
- (b) an aqueous solution containing a water-soluble barium compound dissolved therein; and
- (c) an aqueous solution containing sulfate ions.

The process of Noguchi '360 will result in a complex particle having essentially 100% coverage of barium sulfate on the base powder. This is not the same as 10-70% coverage of BaSO<sub>4</sub> or 40-90% coverage with ZnO or "in protrusions." Noguchi '360 fails to disclose or suggest the use of seed particles or anything that could be used as a crystallization nucleus. Without seed particles, there is nothing to ensure that the BaSO<sub>4</sub> does not completely cover the substrate powder, or adheres in protrusions. Based on the foregoing, Appellants respectfully request that the Board overturn the rejection of claims 1, 6, 7, and 15 over Noguchi '360.

**C. Claims 1-3, 6, 12, 13 and 15 (Grouped) Were Improperly Rejected Under 35 U.S.C. § 102(b) over Noguchi '019**

Claims 1-3, 6, 12, 13 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Noguchi et al., U.S. 4,956,019, ("Noguchi '019"). The Examiner contends that Noguchi '019 teaches a flaky colored pigment comprising fine flaky powder as base material and zinc oxide attached to the surface, col. 1, lines 6-10. Fine flaky particles that form the base material include mica-titanium oxide complexes and the amount of zinc oxide in the finished pigment is about 5 to 70% based on the total weight of the flaky color pigment, col. 1, lines 37-46. The Examiner contends that methods of making the flaky pigment are disclosed, col. 1, line 47 to col. 2, line 21. The Examiner further cites col. 1, lines 29-34; Example 8; col. 5, line 59 to col. 6, line 7; col. 6, lines 26-45; and Example 10, concluding that claims 1-3, 6, 12, 13 and 15 are anticipated by the teachings of Noguchi '019.

Noguchi '019 fails to disclose or suggest that the BaSO<sub>4</sub> or ZnO are adhered to the substrate in the form of protrusions, i.e., in a discontinuous manner. On this basis alone, the subject matter of claims 1-3, 6, 12, 13, and 15 is patentable over Noguchi '019.

Appellants further distinguish the invention over Noguchi '019 by incorporating by reference as if fully stated herein, the discussion of the instantly claimed complex powder as well

as the prior art, including photomicrographs, from the discussion of the Watanabe 102(b) rejection, above. Based on the foregoing, Applicants respectfully request that the Board overturn the rejection.

**D. Claims 1-7, 9-12, 14, and 15 (Grouped) Were Improperly Rejected Under 35 U.S.C. § 103(a) over Noguchi '019 in view of Noguchi '666**

Claims 1-7, 9-12, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi '019 in view of Noguchi et al., U.S. 6,086,666, ("Noguchi '666"). The Examiner admits that Noguchi '019 fails to expressly teach the shape of the barium sulfate or the zinc oxide particles. Accordingly, the Examiner cites Noguchi '666 for its alleged teaching of coating a flaky (i.e. platelet shaped) powder with particles of zinc oxide and barium sulfate. col. 2, lines 8-11. The particles of barium sulfate have an average diameter of 0.1 to 2.0 microns and are essentially platelet shaped, whereas zinc oxide is needle-shaped with an average major-axis (i.e. long axis) diameter of 0.05 to 1.5 microns, col. 2, lines 18-28. The Examiner cites col. 2, lines 30-46; col. 3, lines 3-16, 23-36, 48-51; and claims 4 and 5 for further details about the manufacturing process and the particles themselves, all of which lead the Examiner to conclude that it would have been obvious to make a flaky pigment with a mica-titanium oxide complex as the base material and zinc oxide particles as the coating, as suggested by Noguchi '019, combine it with the needle-shaped zinc oxide coating and platelet shaped barium sulfate coating of a flaky powder, as taught by Noguchi '666, and produce the instant invention. The Examiner cites motivations for the combination at col. 2, lines 52-59 of Noguchi '666.

For all of their cited teachings, neither Noguchi patent ('019 or '666) recites that the BaSO<sub>4</sub> or ZnO are adhered to the substrate particles in the form of protrusions, i.e., in a discontinuous manner. Appellants further distinguish the invention over Noguchi '019 and Noguchi '666 by incorporating by reference as if fully stated herein, the discussion of the instantly claimed complex powder as well as the prior art, including photomicrographs, from the discussion of the Watanabe 102(b) rejection, above.

Such coatings in the Noguchi patents thus cover their respective substrate particles in essentially a continuous covering, which would amount to essentially the entire surface area of

such particles. That is, the instances of BaSO<sub>4</sub> or ZnO on the surface of the instantly claimed substrate particles come as irregularly shaped islands, and not a continuous covering. Such protrusions are a result of the use of seed particles which act as nuclei for crystallization of BaSO<sub>4</sub> or ZnO, as amply discussed hereinabove. These differences render the instant claims non-obvious and patentable over the combination of the two cited Noguchi patents. The combination of the two Noguchi patents therefore fails to disclose all limitations of claims 1, 7, 9-12, 14 and 15. Based on the foregoing, Applicants respectfully request that the Board overturn the rejection.

**E. Claims 16, 18, and 19 (Grouped) Were Improperly Rejected Under 35 U.S.C. § 103(a) over Watanabe**

Claims 16, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe. The teaching of Watanabe with respect to coating a substrate with barium sulfate is stated above. The Examiner admits that Watanabe does not expressly teach seed particles that are allowed to coexist in a slurry solution of the flaky substrate powder yet concludes that it would have been obvious to use the method of coating a substrate with barium sulfate particles, as taught by Watanabe, and modify the process by adding seed particles during the process of routine experimentation. The Examiner finds motivation to modify the reference in an alleged teaching of Watanabe that metal oxides can also be precipitated on the pigment, col. 2, lines 17-21. Seed particles, the Examiner alleges, include titanium oxide and zinc oxide, referring to instant paragraph [0084]. Since titanium dioxide, zinc oxide and aluminum oxide are disclosed by Watanabe, one with ordinary skill in the art would find it obvious to include them in the process of coating a substrate. In this case the titanium oxide and other metal oxides would allegedly act as the seed particles upon which the particle would start forming. Regarding each noted claim, the Examiner cites Watanabe at col. 1, lines 49-60; col. 2, lines 17-21; col. 3, lines 49-53, and Examples 7 and 12-14 as support for the allegation that the claims are obvious.

As discussed above, the oxide particles of Watanabe cannot be seed particles as instantly disclosed and claimed. Appellants further distinguish the invention over Watanabe by incorporating by reference as if fully stated herein, the discussion of the instantly claimed complex powder as well as the prior art, including photomicrographs, from the discussion of the

Watanabe 102(b) rejection, above. Applicants note that Watanabe discloses metal oxides that are precipitated onto the pigment, col. 2, lines 17-21. As amply discussed hereinabove, such metal oxides cannot be considered seed particles because they do not act as crystallization nuclei. Indeed, the oxide particles of Watanabe are precipitated, that is, applied onto the pigment, after the pigment is coated onto the substrate particle. Any crystallization of BaSO<sub>4</sub> (pigment) that may occur in the synthesis of Watanabe's particles necessarily occurs before the oxide particles are added. Such oxide particles cannot then act as seed particles.

Based on the foregoing, the use of seed particles is not obvious from Watanabe because Watanabe fails to disclose anything that might reasonably act as a seed particle, and hence fails to disclose all limitations. Applicants respectfully request that the Board overturn the rejection of claims 16, 18, and 19.

**F. Claims 20 and 21 (Grouped) Were Improperly Rejected Under 35 U.S.C. § 103(a) over Watanabe and Noguchi '360**

Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe in view of Noguchi '360. The teachings of Watanabe are set forth above, and incorporated herein by reference. The Examiner admits that Watanabe fails to expressly teach a complexing agent. The Examiner cites col. 2, lines 24-36 of Noguchi '360 with respect to the process of making a fine granular barium sulfate-coated flaky pigment with a complexing agent. The Examiner concludes that it would have been obvious to use the method of coating a substrate with barium sulfate particles, as taught by Watanabe, and modify the process by adding seed particles during the process of routine experimentation, combine it with the process of making a fine granular barium sulfate-coated flaky pigment with a complexing agent, as taught by Noguchi '360, and produce the instant invention. One with ordinary skill in the art would allegedly do so because Noguchi '360 teaches that a complexing agent is capable of forming a complex compound with the barium ion which leads to formation of particles on the surfaces of the fine flaky pigment grains, col. 2, lines 24-36.

As stated amply above, Watanabe fails to disclose a seed particle, which is a key limitation of claim 16, from which claims 20 and 21 depend. Noguchi '360 also fails to disclose a seed particle. Hence, claims 20 and 21 fall outside the combined scope of Watanabe and

Noguchi. While asserting the patentability of claims 20 and 21, Applicants respectfully request that the Board overturn the rejection.

**G. Claim 17 Was Improperly Rejected Under 35 U.S.C. § 103(a) over Noguchi '019 and Watanabe**

Claim 17 was rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi '019 in view of Watanabe. While the teachings of Noguchi '019 are noted above, the Examiner admits that such teachings do not include that seed particles are allowed to coexist in a slurry solution of the flaky substrate powder. The Examiner contends that Watanabe teaches seed particles such as metal oxides that can also be precipitated on the pigment, col. 2, lines 17-21. The Examiner concludes that it would have been obvious to use the method of coating a substrate with zinc oxide particles, as taught by Noguchi '019, and combine it with the metal oxides that can be precipitated on the pigment, as taught by Noguchi '019, to produce the instant invention.

As discussed above, the oxide particles of Watanabe cannot act as seed particles as instantly disclosed and claimed. Applicants note that Watanabe discloses metal oxides that are precipitated on the pigment, col. 2, lines 17-21. Such metal oxides cannot be considered seed particles because they do not act as crystallization nuclei. Indeed, the oxide particles of Watanabe are precipitated, that is, applied onto the pigment, after the pigment is coated onto the substrate particle. Any crystallization of BaSO<sub>4</sub> (pigment) that may occur in the synthesis of Watanabe's particles necessarily occurs before the oxide particles are added. Such oxide particles cannot then act as seed particles.

Hence, the basis for the instant rejection fails. Applicants respectfully submit that claim 17 is patentable over Noguchi '019 in view of Watanabe and respectfully request that the Board overturn the rejection.

*Conclusion*

In view of the foregoing, it is respectfully submitted that claims 1-7, 9-12 and 14-22 are allowable over the prior art of record, and a ruling from the Board to that effect is therefore respectfully requested.

Respectfully submitted,  
RANKIN, HILL & CLARK, L.L.P.

/Christopher J. Korff/  
Kenneth A. Clark  
Reg. No. 32,119  
Christopher J. Korff  
Reg. No. 55,342

23755 Lorain Road  
Suite 200  
North Olmsted, Ohio 44070  
(216) 566-9700

## CLAIMS APPENDIX

Claim 1: A composite powder comprising a flaky substrate powder and barium sulfate particles or zinc oxide particles that adhere, in protrusions, to the surface of said substrate powder, wherein the coverage with barium sulfate particles is 10-70% with respect to the surface area of said substrate powder or the coverage with zinc oxide particles is 40-90 % with respect to the surface area of said substrate powder.

Claim 2: The composite powder according to claim 1, wherein said substrate powder generates interference colors.

Claim 3: The composite powder according to claim 2, wherein said substrate powder is titanated mica.

Claim 4: The composite powder according to claim 3, wherein barium sulfate particles or zinc oxide particles, which adhere to the surface of said substrate powder, have approximately uniform particle diameters.

Claim 5: The composite powder according to claim 4, wherein said barium sulfate particles or zinc oxide particles adhere to the surface of said substrate powder so that the distance between the particles is approximately uniform.

Claim 6: The composite powder according to claim 1, wherein the adhesion rate of barium sulfate particles or zinc oxide particles to said substrate is 15–100 weight %.

Claim 7: The composite powder according to claim 1, wherein particles adhering to the surface of said substrate are barium sulfate particles.

Claim 8 (canceled)

Claim 9: The composite powder according to claim 7, wherein said barium sulfate particles are flaky, and said barium sulfate particles adhere to the surface of the substrate powder by contacting at the peripheral points of the flakes and adhere at a certain angle with respect to the surface of the substrate powder.

Claim 10: The composite powder according to claim 9, wherein said barium sulfate particles are approximately square flakes, and said barium sulfate particles adhere to the surface of the substrate powder by contacting at the peripheral points of the flakes and adhere at a certain angle with respect to the surface of the substrate powder.

Claim 11: The composite powder according to claim 7, wherein said barium sulfate particles are spherical, and the number average particle diameter of said particles is 0.5–5.0  $\mu\text{m}$ .

Claim 12: The composite powder according to claim 1, wherein particles adhering to the surface of said substrate are zinc oxide particles.

Claim 13 (canceled)

Claim 14: The composite powder according to claim 12, wherein said zinc oxide particles are long needle-shape.

Claim 15: A cosmetic comprising a composite powder according to claim 1.

Claim 16: A method of producing composite powder adhering barium sulfate particles, wherein seed particles are allowed to coexist in a slurry solution of the flaky substrate powder, and barium sulfate crystals are grown from said seed particles, which act as nuclei, by adding a barium ion solution and a sulfate ion solution to said solution and reacting them, and the formed barium sulfate particles are allowed to adhere to the surface of said substrate powder.

Claim 17: A method of producing composite powder adhering zinc oxide particles, wherein seed



particles are allowed to coexist in a slurry solution of the flaky substrate powder, zinc oxide crystals are grown from said seed particles, which act as nuclei, by adding a zinc ion solution and an alkali aqueous solution to said solution and reacting them, and the formed zinc oxide particles are allowed to adhere to the surface of said substrate powder.

Claim 18: The method of producing composite powder according to claim 16 wherein the amount of the added seed particles is 0.1–15 weight % with respect to that of the substrate powder.

Claim 19: The method of producing composite powder according to claim 16 wherein the reaction is conducted under the conditions that the pH of the slurry solution is always adjusted in a range of 7–9.

Claim 20: The method of producing composite powder adhering barium sulfate particles according to claim 16, wherein one or more complexing agents is allowed to coexist in the slurry solution.

Claim 21: The method of producing composite powder containing adhering barium sulfate particles according to claim 20, wherein the amount of added complexing agent is 0.4–10.0 equivalents with respect to that of the barium.

Claim 22: The composite powder of claim 1 further comprising seed particles, wherein the barium sulfate particles or zinc oxide adhere to the substrate particles through said seed particles.

## **EVIDENCE APPENDIX**

None.

## **RELATED PROCEEDINGS APPENDIX**

This Appendix includes: